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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/083,284	02/26/2002	Roy Martin	S01364/70033 PCL	4144
37462	7590	07/09/2004	EXAMINER	
LOWRIE, LANDO & ANASTASI RIVERFRONT OFFICE ONE MAIN STREET, ELEVENTH FLOOR CAMBRIDGE, MA 02142			LAWRENCE JR, FRANK M	
			ART UNIT	PAPER NUMBER
			1724	

DATE MAILED: 07/09/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/083,284

Applicant(s)

MARTIN, ROY

Examiner

Frank M. Lawrence

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 07 June 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 31-52 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 31-48 is/are allowed.
- 6) ☒ Claim(s) 49-52 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Specification*

1. The disclosure is objected to because of the following informalities: Claim 35 should be amended to depend from claim 34 because of the recitation "the coating" that refers back to the channel coating of claim 34.

Appropriate correction is required.

### *Claim Rejections - 35 USC § 102*

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claim 49 is rejected under 35 U.S.C. 102(b) as being anticipated by Jackson (5,236,602).
4. Jackson '602 teaches a system for reducing hydrocarbon contaminants in a source of wastewater, comprising a stainless steel vessel (30) for receiving contaminated water through an inlet (34), a second inlet (44) for introducing a source of reactive media that can include ultrapure water and oxygen, ozone or hydrogen peroxide, a source of radiation (36) having a wavelength in the range of 185 and 254 nm for producing hydroxyl radicals for reacting with the contaminants, a mixer (42), and an outlet (48) for discharging treated water (figure 2, col. 5, lines 36-59, col. 6, line 61 to col. 7, line 59, col. 8, lines 16-29, col. 9, line 59 to col. 10, line 23).

### *Claim Rejections - 35 USC § 103*

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 50-52 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jackson '602 in view of Gonzalez-Martin et al. (5,779,912).

7. Jackson '602 discloses all of the limitations of the claims except that a wall of the channel comprises titanium or that the channel surface is coated with titanium dioxide to promote free radical production. Gonzalez-Martin et al. '912 disclose a photocatalytic reactor for producing hydroxyl radicals from a water or water/peroxide mixture, comprising a channel including a substrate wall (14) surrounding a UV radiation source and a titanium dioxide coating on the substrate wall (figures 1, 1a, 2, col. 1, lines 38-48, col. 2, lines 20-29, col. 5, line 33 to col. 6, line 23). It would have been obvious to one having ordinary skill in the art at the time of the invention to modify the system of Jackson '602 by using a titanium dioxide coating in order provide a device that further promotes the production of hydroxyl free radicals for contaminant oxidation.

*Allowable Subject Matter*

8. Claims 31-48 are allowed.

9. The following is an examiner's statement of reasons for allowance: Independent claims 31 and 41 have each been amended to recite that the low oxygen demand liquid comprising the hydroxyl free radicals is added to the water system. As applicant asserts, the cited prior art to Jackson fails to disclose or suggest the adding step wherein low oxygen demand liquid including the hydroxyl free radicals is added to the water system, and instead discloses adding the water to the water system followed by generation of free radicals in the mixture.

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Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

***Response to Arguments***

10. Applicant's arguments filed June 7, 2004 have been fully considered but they are not persuasive. With respect to claim 49, applicant argues that Jackson '602 fails to disclose a body of water fluidly connected to the outlet of the free radical generator and a substantially pure water source fluidly connected to the inlet such that the substantially pure water source comprises water not from the body of water. It is submitted that the body of water (40) within the free radical generator (30) of Jackson anticipates the body of water fluidly connected to the outlet (48) of the generator. Also, the second inlet (44) is connected to a source of reactive media that can include ultrapure water as discussed in paragraph 4 above.

11. In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, the motivation and suggestion to combine the Gonzalez-Martin et al. patent with the Jackson patent is found in the former patent as discussed in paragraph 7 above with relevant sections pointed out.

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***Conclusion***

12. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Frank M. Lawrence whose telephone number is 571-272-1161. The examiner can normally be reached on Mon-Thurs 7:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Duane Smith can be reached on 571-272-1166. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Frank M. Lawrence  
Primary Examiner  
Art Unit 1724

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*Frank Lawrence*  
*7-7-04*